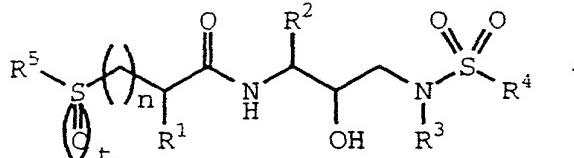


WHAT IS CLAIMED IS:

1. Compound represented by the formula:

5



or a pharmaceutically acceptable salt, prodrug or ester thereof, wherein  $n$  and  $t$  each independently represent 0, 1 or 2;

10

$R^1$  represents hydrogen, alkyl of 1-5 carbon atoms, alkenyl of 2-5 carbon atoms, alkynyl of 2-5 carbon atoms, hydroxyalkyl of 1-3 carbon atoms, alkoxyalkyl of 1-3 alkyl and 1-3 alkoxy carbon atoms, cyanoalkyl of 1-3 alkyl carbon atoms,  $-CH_2CONH_2$ ,  $-CH_2CH_2CONH_2$ ,

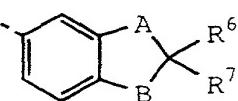
15  $-CH_2S(O)_2NH_2$ ,  $-CH_2SCH_3$ ,  $-CH_2S(O)CH_3$  or  $-CH_2S(O)_2CH_3$  radicals;

$R^2$  represents radicals of alkyl of 1-5 carbon atoms,

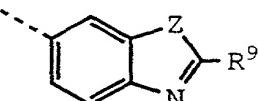
20 aralkyl of 1-3 alkyl carbon atoms, alkylthioalkyl of 1-3 alkyl carbon atoms, arylthioalkyl of 1-3 alkyl carbon atoms or cycloalkylalkyl of 1-3 alkyl carbon atoms and 3-6 ring member carbon atoms;

25  $R^3$  represents radicals of alkyl radical of 1-5 carbon atoms, cycloalkyl of 5-8 ring members or cycloalkylmethyl radical of 3-6 ring members;

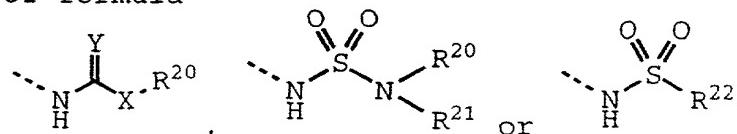
30  $R^4$  represents benzo fused 5 to 6 ring member heteroaryl or benzo fused 5 to 6 ring member heterocyclo radicals, or a radical of the formula



wherein A and B each independently represent O, S, SO or SO<sub>2</sub>; R<sup>6</sup> represents deuterium, alkyl of 1-5 carbon atoms, fluoro or chloro radicals; R<sup>7</sup> represents hydrogen, deuterium, methyl, fluoro or chloro radicals; or a  
 5 radical of the formula



wherein Z represents O, S or NH; and R<sup>9</sup> represents a radical of formula



10 wherein Y represents O, S or NH; X represents a bond, O or NR<sup>21</sup>;

R<sup>20</sup> represents hydrogen, alkyl of 1 to 5 carbon atoms, alkenyl of 2 to 5 carbon atoms, alkynyl of 2 to 5 carbon atoms, aralkyl of 1 to 5 alkyl carbon atoms, heteroaralkyl of 5 to 6 ring members and 1 to 5 alkyl carbon atoms, heterocycloalkyl of 5 to 6 ring members and 1 to 5 alkyl carbon atoms, aminoalkyl of 2 to 5 carbon atoms, N-mono-substituted or N,N-disubstituted aminoalkyl of 2 to 5

15 atoms, aralkyl of 1 to 5 alkyl carbon atoms, heteroaralkyl of 5 to 6 ring members and 1 to 5 alkyl carbon atoms, heterocycloalkyl of 5 to 6 ring members and 1 to 5 alkyl carbon atoms, aminoalkyl of 2 to 5 carbon atoms, N-mono-substituted or N,N-disubstituted aminoalkyl of 2 to 5

20 alkyl carbon atoms wherein said substituents are radicals of alkyl of 1 to 3 carbon atoms, aralkyl of 1 to 3 alkyl carbon atoms radicals, carboxyalkyl of 1 to 5 carbon atoms, alkoxy carbonylalkyl of 1 to 5 alkyl carbon atoms, cyanoalkyl of 1 to 5 carbon atoms or hydroxyalkyl of 2 to 25 5 carbon atoms;

R<sup>21</sup> represents hydrogen radical or alkyl radical of 1 to 3 carbon atoms; or the radical of formula -NR<sup>20</sup>R<sup>21</sup> represents a 5 to 6 ring member heterocyclo radical; and

30 R<sup>22</sup> represents alkyl radical of 1 to 3 carbon atoms or R<sup>20</sup>R<sup>21</sup>N-alkyl radical of 1 to 3 alkyl carbon atoms; and

R<sup>5</sup> represents an alkyl radical of 1-5 carbon atoms, alkenyl radical of 2-5 carbon atoms, alkynyl radical of 2-5 carbon atoms or aryl substituted alkyl radical of 1-5 carbon atoms.

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2. Compound of Claim 1, or a pharmaceutically acceptable salt, prodrug or ester thereof, wherein n represents 1;

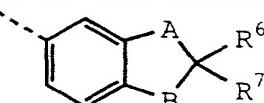
10 t represents 1 or 2;

R<sup>1</sup> represents hydrogen radical, alkyl radical of 1-3 carbon atoms, alkenyl radical of 2-3 carbon atoms, alkynyl radical of 2-3 carbon atoms radicals or  
15 cyanomethyl;

R<sup>2</sup> represents radicals of alkyl of 3-5 carbon atoms, arylmethyl, alkylthioalkyl of 1-3 alkyl carbon atoms, arylthiomethyl or cycloalkylmethyl of 5-6 ring member  
20 carbon atoms radicals;

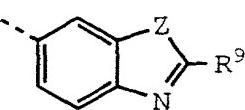
R<sup>3</sup> represents alkyl of 1-5 carbon atoms, cycloalkylmethyl of 3-6 ring members, cyclohexyl or cycloheptyl radicals;

25 R<sup>4</sup> represents 2-amino-benzothiazol-5-yl, 2-amino-benzothiazol-6-yl, benzothiazol-5-yl, benzothiazol-6-yl, benzoxazol-5-yl, 2,3-dihydrobenzofuran-5-yl, benzofuran-5-yl, 1,3-benzodioxol-5-yl or 1,4-benzodioxan-6-yl radicals; or a radical of the formula

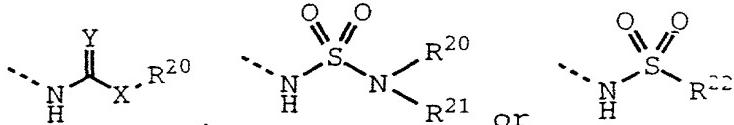


30

wherein A and B each represent O; R<sup>6</sup> represents deuterium, methyl, ethyl, propyl, isopropyl or fluoro radicals; and R<sup>7</sup> represents hydrogen, deuterium, methyl or fluoro radicals; or a radical of the formula



wherein Z represents O, S or NH; and R<sup>9</sup> represents a radical of formula



5 wherein Y represents O, S or NH; X represents a bond, O or NR<sup>21</sup>;

R<sup>20</sup> represents hydrogen, alkyl of 1 to 5 carbon atoms,  
phenylalkyl of 1 to 3 alkyl carbon atoms, heterocycloalkyl  
10 of 5 to 6 ring members and 1 to 3 alkyl carbon atoms, or  
N-mono-substituted or N,N-disubstituted aminoalkyl of 2 to  
3 alkyl carbon atoms wherein said substituents are alkyl  
radicals of 1 to 3 carbon atoms; and

15 R<sup>21</sup> represents hydrogen or methyl radicals; or the radical  
of formula -NR<sup>20</sup>R<sup>21</sup> represents pyrrolidinyl, piperidinyl,  
piperazinyl, 4-methylpiperazinyl, 4-benzylpiperazinyl,  
morpholinyl or thiomorpholinyl radicals; and

20 R<sup>22</sup> represents alkyl radical of 1 to 3 carbon atoms; and

R<sup>5</sup> represents an alkyl radical of 1-5 carbon atoms,  
alkenyl radical of 3-4 carbon atoms, alkynyl radical of  
3-4 carbon atoms or aryl substituted alkyl radical of 1-4  
25 carbon atoms.

3. Compound of Claim 2, or a pharmaceutically  
acceptable salt, prodrug or ester thereof, wherein

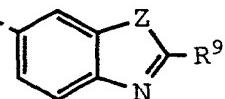
30 R<sup>1</sup> represents hydrogen, methyl, ethyl or cyanomethyl  
radicals;

R<sup>2</sup> represents isobutyl, n-butyl, CH<sub>3</sub>SCH<sub>2</sub>CH<sub>2</sub>-,  
phenylthiomethyl, (2-naphthylthio)methyl, benzyl, 4-

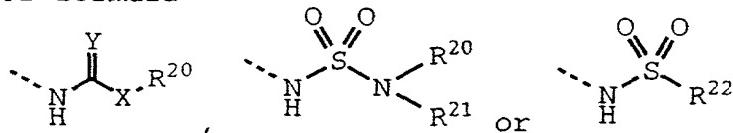
methoxyphenylmethyl, 4-hydroxyphenylmethyl, 4-fluorophenylmethyl or cyclohexylmethyl radicals;

R<sup>3</sup> represents propyl, isoamyl, isobutyl, butyl,  
5 cyclohexyl, cycloheptyl, cyclopentylmethyl or  
cyclohexylmethyl radicals; and

R<sup>4</sup> represents benzothiazol-5-yl, benzothiazol-6-yl,  
benzoxazol-5-yl, 2,3-dihydrobenzofuran-5-yl, benzofuran-  
10 5-yl, 1,3-benzodioxol-5-yl, 2-methyl-1,3-benzodioxol-5-  
yl, 2,2-dimethyl-1,3-benzodioxol-5-yl, 2,2-dideutero-1,3-  
benzodioxol-5-yl, 2,2-difluoro-1,3-benzodioxol-5-yl or  
1,4-benzodioxan-6-yl radicals; or a radical of the  
formula



15 wherein Z represents O, S or NH; and R<sup>9</sup> represents a  
radical of formula



wherein Y represents O, S or NH; X represents a bond, O or  
20 NR<sup>21</sup>;

R<sup>20</sup> represents hydrogen, methyl, ethyl, propyl,  
isopropyl, isobutyl, benzyl, 2-(1-pyrrolidinyl)ethyl, 2-(1-piperidinyl)ethyl, 2-(1-piperazinyl)ethyl, 2-(4-methylpiperazin-1-yl)ethyl, 2-(1-morpholinyl)ethyl, 2-(1-thiamorpholinyl)ethyl or 2-(N,N-dimethylamino)ethyl  
25 radicals;

R<sup>21</sup> represents a hydrogen radical; and  
30

R<sup>22</sup> represents methyl radical; and

R<sup>5</sup> represents an alkyl radical of 1-5 carbon atoms or  
phenyl substituted alkyl radical of 2-4 carbon atoms.

4. Compound of Claim 3 or a pharmaceutically acceptable salt, prodrug or ester thereof, wherein

5 R<sup>1</sup> represents methyl or ethyl radicals;

R<sup>2</sup> represents benzyl, 4-fluorophenylmethyl or cyclohexylmethyl radicals;

10 R<sup>4</sup> represents benzothiazol-5-yl, benzothiazol-6-yl, 2,3-dihydrobenzofuran-5-yl, benzofuran-5-yl, 1,3-benzodioxol-5-yl, 2-methyl-1,3-benzodioxol-5-yl, 2,2-dimethyl-1,3-benzodioxol-5-yl, 2,2-dideutero-1,3-benzodioxol-5-yl, 2,2-difluoro-1,3-benzodioxol-5-yl, 1,4-benzodioxan-6-yl,

15 2-(methoxycarbonylamino)benzothiazol-6-yl or 2-(methoxycarbonylamino)benzimidazol-5-yl radicals; and

R<sup>5</sup> represents methyl, ethyl, propyl, isopropyl or 2-phenylethyl radicals.

20

5. Compound of Claim 1 which is

N-[2R-hydroxy-3-[(2-methylpropyl)[(1,3-benzodioxol-5-yl)sulfonyl]amino]-1S-(phenylmethyl)propyl]-2S-methyl-3-(methylsulfonyl)propanamide;

N-[2R-hydroxy-3-[(2-methylpropyl)[(1,4-benzodioxan-6-yl)sulfonyl]amino]-1S-(phenylmethyl)propyl]-2S-methyl-3-(methylsulfonyl)propanamide;

30

N-[2R-hydroxy-3-[(2-methylpropyl)[(benzothiazol-6-yl)sulfonyl]amino]-1S-(phenylmethyl)propyl]-2S-methyl-3-(methylsulfonyl)propanamide;

35 N-[2R-hydroxy-3-[(2-methylpropyl)[(benzothiazol-5-yl)sulfonyl]amino]-1S-(phenylmethyl)propyl]-2S-methyl-3-(methylsulfonyl)propanamide; or

N-[2R-hydroxy-3-[(2-methylpropyl)[(2,3-dihydrobenzofuran-5-yl)sulfonyl]amino]-1S-(phenylmethyl)propyl]-2S-methyl-3-(methylsulfonyl)propanamide.

5

6. Composition comprising a compound of Claim 1 and a pharmaceutically acceptable carrier.

10 7. Method of inhibiting a retroviral protease comprising administering an effective amount of a compound of Claim 1.

15 8. Method of treating a retroviral infection comprising administering an effective amount of a composition of Claim 6.

9. Method of preventing replication of a retrovirus comprising administering an effective amount of a compound of Claim 1.

20

10. Method of preventing replication of a retrovirus *in vitro* comprising administering an effective amount of a compound of Claim 1.

25

11. Method of treating AIDS comprising administering an effective amount of a composition of Claim 6.